

Project Number:	656
Category:	Design/Construction of Fixed Bottom Turbines
Date:	February 2011
Subject:	<i>Seabed Scour Considerations</i>
Performing Activity:	Fugro West, Inc.
Principal Investigator:	T. McNeilan
Contracting Agency:	Bureau of Safety and Environmental Enforcement
Summary:	The Atlantic OCS is a frontier area for offshore energy development and has high sediment transport and sediments susceptible to scour. The researcher reviewed oceanographic and seabed data from the Atlantic OCS and available information from European offshore wind projects and then used the information to assess how offshore wind structures may affect scour susceptibility of the seabed.
Key Findings:	<ul style="list-style-type: none"> • Under normal sea conditions, sediment transport evolves to a condition of dynamic equilibrium, which becomes unbalanced during large storm events. • The introduction of offshore wind farm structures can significantly alter the rate and magnitude of seafloor changes by increasing localized currents and disturbing the sediment. • Experiences in offshore Europe illustrate that the most problematic conditions occur at the J-tube cable connection to turbine structures and in the exposure of buried cables.
Recommendations:	<ul style="list-style-type: none"> • Scour is a significant potential hazard to wind turbine foundations and requires careful evaluation and mitigation design measures using an integrated approach from several disciplines. • High-quality multibeam bathymetry is needed to define seabed topography and monitor changes. • Scour mitigation should be designed for project- and site-specific conditions with post installation monitoring to evaluate its effectiveness.
Subsequent Studies/Activities:	<ul style="list-style-type: none"> • Scour considerations identified in the study should be incorporated into all Atlantic OCS offshore wind projects. • An ongoing geophysical survey of Virginia Wind Energy Area by Fugro Atlantic and funded by BOEM and Virginia Department of Mines, Minerals and Energy (DMME) that documents sand wave migration offshore the Virginia coast
Report Link:	AA